

AMENDMENT AND PRESENTATION OF CLAIMS

Please replace all prior claims in the present application with the following claims, in which claims 1, 6, 8, 15, and 17 are currently amended, claims 7 and 16 are canceled without prejudice or disclaimer, and no claims are withdrawn or newly presented.

1. (Currently Amended) A computer implemented method for accessing an instance of a recreatable object in a shorter-duration memory based on a reference located in a longer-duration memory, wherein the shorter-duration memory is associated with a call, the method comprising the steps of:

locating, within the shorter-duration memory, a context structure associated with the call;

locating an XREF pointers array based on data cached within the context structure;

determining whether the XREF pointers array includes a pointer associated with said reference located in the longer-duration memory; and

if the XREF pointers array includes a pointer associated with said reference located in the longer-duration memory, then following said pointer to locate said instance within said shorter-duration memory.

2. (Previously Presented) The method of Claim 1 wherein the step of locating an XREF pointers array based on data cached within the context structure comprises the steps of:

determining a hash code associated with a memory page in which the reference located in the longer-duration memory is located;

using at least a portion of the hash code as an index to locate an array entry within an array stored within the context structure; and

if said array entry contains a pointer, then following said pointer stored in said array entry to locate said XREF pointers array.

3. (Original) The method of Claim 2 wherein:

the array is a power-of-two array; and

the portion of said hash code that is used as said index includes a particular number of bits of said hash code.

4. (Original) The method of Claim 1 wherein:

the XREF pointers array does not include a pointer associated with said reference; and

the method further comprises the steps of

creating said instance by activating said recreatable object; and

storing a pointer to said instance in said XREF pointers array.

5. (Original) The method of Claim 2 wherein:

if said array entry does not contain a pointer, then creating said instance by activating said recreatable object; and

storing a pointer to said instance in said array entry.

6. (Currently Amended) A computer implemented method for accessing an instance of a recreatable object in shorter-duration memory based on a reference located in a longer-duration memory, wherein the shorter-duration memory is associated with a call, the method comprising the steps of:

when a class is activated, generating, within said shorter-duration memory, a class object associated with the class;

storing, within said class object, data for locating instances of recreatable objects associated with said class, wherein said data includes a pointer to an XREF pointers array;

to dereference said reference located in the longer-duration memory, performing the steps of determining that said reference located in a longer-duration memory is associated with said class; and

using said data within said class object to locate said instance of said recreatable object.

7. (Canceled)

8. (Currently Amended) The method of Claim 7 6 wherein the step of using said data within object to locate said instance includes the steps of:

determining whether the XREF pointers array includes a pointer associated with said reference;

if the XREF pointers array includes a pointer associated with said reference, then following said pointer to locate said instance within said shorter-duration memory.

9. (Original) The method of Claim 8 wherein:

the XREF pointers array does not include a pointer associated with said reference; and

the method further comprises the steps of

creating said instance by activating said recreatable object; and

storing a pointer to said instance in said XREF pointers array.

10. (Previously Presented) A computer-readable medium carrying instructions for accessing an instance of a recreatable object in a shorter-duration memory based on a reference located in a longer-duration memory, wherein the shorter-duration memory is associated with a call, the computer-readable medium comprising instructions for performing the steps of:

- locating, within the shorter-duration memory, a context structure associated with the call;
- locating an XREF pointers array based on data cached within the context structure;
- determining whether the XREF pointers array includes a pointer associated with said reference located in the longer-duration memory; and
- if the XREF pointers array includes a pointer associated with said reference located in the longer-duration memory, then following said pointer to locate said instance within said shorter-duration memory.

11. (Previously Presented) The computer-readable medium of Claim 10 wherein the step of locating an XREF pointers array based on data cached within the context structure comprises the steps of:

- determining a hash code associated with a memory page in which the reference located in the longer-duration memory is located;
- using at least a portion of the hash code as an index to locate an array entry within an array stored within the context structure; and
- if said array entry contains a pointer, then following said pointer stored in said array entry to locate said XREF pointers array.

12. (Original) The computer-readable medium of Claim 11 wherein:
the array is a power-of-two array; and
the portion of said hash code that is used as said index includes a particular number of bits of
said hash code.
13. (Original) The computer-readable medium of Claim 10 wherein:
the XREF pointers array does not include a pointer associated with said reference; and
the computer-readable medium further comprises instructions for performing the steps of
creating said instance by activating said recreatable object; and
storing a pointer to said instance in said XREF pointers array.
14. (Original) The computer-readable medium of Claim 11 further comprising instructions
for performing the steps of:
if said array entry does not contain a pointer, then creating said instance by activating said
recreatable object; and
storing a pointer to said instance in said array entry.

15. (Currently Amended) A computer-readable medium carrying instructions for accessing an instance of a recreatable object in shorter-duration memory based on a reference located in a longer-duration memory, wherein the shorter-duration memory is associated with a call, the computer-readable medium comprising instructions for performing the steps of:

when a class is activated, generating, within said shorter-duration memory, a class object associated with the class;

storing, within said class object, data for locating instances of recreatable objects associated with said class, wherein said data includes a pointer to an XREF pointers array;

to dereference said reference located in the longer-duration memory, performing the steps of determining that said reference located in the longer-duration memory is associated with said class; and

using said data within said class object to locate said instance of said recreatable object.

16. (Canceled)

17. (Currently Amended) The computer-readable medium of Claim ~~46~~ 15 wherein the step of using said data within object to locate said instance includes the steps of:

determining whether the XREF pointers array includes a pointer associated with said reference;

if the XREF pointers array includes a pointer associated with said reference, then following said pointer to locate said instance within said shorter-duration memory.

18. (Original) The computer-readable medium of Claim 17 wherein:

the XREF pointers array does not include a pointer associated with said reference; and

the computer-readable medium further comprises instructions for performing the steps of creating said instance by activating said recreatable object; and storing a pointer to said instance in said XREF pointers array.

19. (Previously Presented) The method of Claim 1 wherein the duration of the shorter-duration memory is shorter than the duration of the longer-duration memory.

20. (Previously Presented) The computer-readable medium of claim 10 wherein the duration of the shorter-duration memory is shorter than the duration of the longer-duration memory.